Code No: 246AG **R17**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy III Year II Semester Examinations, November\December-2020
BIOINFORMATICS

Time: 2 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1.a) (i) What is WWW.
(ii) WHAT IS http:
b) Give a schematic outline for protein sequence annotation for a given of Mass spectral data obtained for a protein. [8+7]

2.a) Explain how gene expression data is helpful in biological research.
b) Give few free online websites for bioinformatics tools. [8+7]

3.a) Write about primary and secondary data bases
b) If a protein (ex.Hemoglobin) is given. Write the procedure to retrieve its protein and nucleic acid sequence. [7+8]

4.a) What is gap penalty. What are the commonly used types of gap penalty in sequence alignments?
b) What is the significance of orthologs, paralogs and xenologs in sequence alignment? [8+7]

5.a) Explain how microarray analysis is useful in disease diagnosis and treatment.
b) What is a transcriptome. Explain how to carry out transcriptome analysis? [7+8]

6. What is genome assembly, how it works and what is its significance and how to assemble de novo genomes. [15]

7.a) Explain how SNPs are useful in identification of genetic polymorphisms
b) Write the advantages and limitations of using various bioinformatics tools in the drug designing. [7+8]

8.a) Explain various steps involved in homology modeling with a brief note on energy considerations during drug-ligand interactions.
b) Write the three stages involved in protein sequence identification. [8+7]

--ooOoo---

Code No: 246AD **R17**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy III Year II Semester Examinations, February/March - 2022
BIOPHARMACEUTICS AND PHARMACOKINETICS

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1.a) Explain any four mechanisms of drug absorption.
b) Explain the dosage form factors affecting absorption. [8+7]

2.a) Explain any four physiological barriers to drug distribution.
b) Explain the patient related factors affecting protein binding of drugs. [8+7]

3.a) Explain any two phase-II reactions of drug metabolism.
b) Explain the principal processes in kidney to determine the excretion of drug. [8+7]

4.a) Define absolute and relative bio-availability.
b) Explain the pharmacokinetics and pharmacodynamics for assessment of bioavailability. [5+10]

5. Give an account indicating the applications and limitations of physiologic pharmacokinetic models. [15]

6.a) Explain the pharmacodynamics parameters in the plasma drug concentration time profile.
b) Explain Open one compartment model with IV bolus administration.
c) Illustrate a flip-flop of absorption rate constant. [4+8+3]

7. Explain the pharmacokinetic aspects pertaining to:
a) Multiple dose injections
b) Multiple dosages oral administration [7+8]

8.a) Explain detail the cause of non-linearity in pharmacokinetics
b) Describe the Michaelis-Menten equation and explain its three different forms based on the rate of process. [8+7]

---ooOoo---

Code No: 245AG **R17**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy III Year I Semester Examinations, February-2022
CELL AND MOLECULAR BIOLOGY

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1. Write the differences between a prokaryotic and eukaryotic cell. [15]
2. Explain how mitosis is responsible for cellular reproduction. [15]
3. Explain the structure of DNA and how it works for transmission of genetic information. [15]
4. What are various types of RNA and their function? [15]
5. Write about the structural hierarchy of proteins. [15]
6. Explain any one significant cellular process of your choice. [15]
7. What are transgenics and explain about few plant transgenics. [15]
8. Explain few cell surface receptors along with their functions. [15]

--ooOoo--

Code No: 245AC **R17**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy III Year I Semester Examinations, February-2022
PHARMACOLOGY - II

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1. Define congestive heart failure and hypertension? Write a note on drugs used to treat these conditions. [15]

2. Classify anti-arrhythmic drugs? Write their mechanisms of action, adverse effects and therapeutic uses. [15]

3. Classify anti-platelet drugs? Among the NSAIDs, explain why only aspirin possess antiplatelet activity? Write a note on fibrinolytics. [15]

4. Classify diuretics? Write their mechanisms of action, adverse effects and therapeutic uses. [15]

5. Write a note on drugs used in the treatment of gout and rheumatoid arthritis. [15]

6. Classify analgesics and explain their analgesic, anti-inflammatory and antipyretic actions? Write a note on Substance P. [15]

7. Classify oral hypoglycemic agents, write their mechanism of action and adverse effects. Mention the hormones secreted by pituitary. [15]

8. Describe how parathormone, calcitonin and vitamin-D regulate calcium homeostasis? Write a note on corticosteroids. [15]

---ooOoo---

Code No: 245AC **R17**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy III Year I Semester Examinations, February-2022
PHARMACOLOGY - II

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1. Define congestive heart failure and hypertension? Write a note on drugs used to treat these conditions. [15]

2. Classify anti-arrhythmic drugs? Write their mechanisms of action, adverse effects and therapeutic uses. [15]

3. Classify anti-platelet drugs? Among the NSAIDs, explain why only aspirin possess antiplatelet activity? Write a note on fibrinolytics. [15]

4. Classify diuretics? Write their mechanisms of action, adverse effects and therapeutic uses. [15]

5. Write a note on drugs used in the treatment of gout and rheumatoid arthritis. [15]

6. Classify analgesics and explain their analgesic, anti-inflammatory and antipyretic actions? Write a note on Substance P. [15]

7. Classify oral hypoglycemic agents, write their mechanism of action and adverse effects. Mention the hormones secreted by pituitary. [15]

8. Describe how parathormone, calcitonin and vitamin-D regulate calcium homeostasis? Write a note on corticosteroids. [15]

---ooOoo---

Code No: 245AH **R17**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy III Year I Semester Examinations, February-2022
COSMETIC SCIENCE

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1. Write briefly on rheology modifiers, emollients and preservatives with two examples. [15]

2. Draw a neat diagram of skin and explain skin functions. [15]

3.a) Write the advantages and disadvantages of creams?
b) Write the applications of face wash. [8+7]

4. Write a note on hair conditioners and antidandruff shampoo. [15]

5. How Aloe and turmeric help in cosmetics? Write about their principle and formulations. [15]

6. Write about oral care herbal cosmetics. [15]

7. How do you determine skin color, hair tensile strength and hair combing? [15]

8. Write the cosmetic problems associated with skin and can overcome those problems. [15]

--ooOoo--

Code No: 245AE **R17**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy III Year I Semester Examinations, February-2022
GENERIC PRODUCT DEVELOPMENT

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1. Write about Hatch – Waxman Act and its amendments. [15]

2.a) Discuss the generic product development in U.S.
b) Write about Patent certifications of generic product. [10+5]

3. Explain the generic Drug product development steps. [15]

4. Explain about Formula optimization and process optimization of generic drug product. [15]

5. Write about testing of in-process samples of a generic drug product. [15]

6.a) Write about Analytical method validation planning and protocol execution of a generic product.
b) Write about various parameters of an analytical method validation. [8+7]

7.a) Write about Accelerated stability studies of a generic Drug product.
b) Explain about shelf life development of a generic drug product. [10+5]

8. Explain in-vivo tests to ensure bioequivalence of test product. [15]

--ooOoo--

Code No: 245AF **R17**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy III Year I Semester Examinations, February-2022
GREEN CHEMISTRY

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1.a)	Discuss the history and development of green chemistry.	
b)	Explain the ultrasonic approach of green chemistry.	[8+7]
2.a)	Describe the principles of green chemistry.	
b)	Write the microwave approach of green chemistry.	[7+8]
3.	Write the principle and process involved in wartz synthesis.	[15]
4.	Discuss the alternative solvents used in green chemistry strategies.	[15]
5.	Write the principle and process involved in fries rearrangement.	[15]
6.	Write the principle and process involved in reformatsky reactions.	[15]
7.	Discuss the principles and process of solid supported reactions.	[15]
8.	Write the principle and procedure of the following synthesis of pharmaceuticals. a) Ibuprofen b) Nicotinic acid.	[7+8]

--ooOoo--

Code No: 246AC **R17**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy III Year II Semester Examinations, February/March-2022
HERBAL DRUG TECHNOLOGY

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1. Explain the steps involved in processing of herbal drugs. [15]

2.a) Write the Good Agricultural and Collection Practices to be adopted in the cultivation of medicinal plants.
b) Write a note on organic farming. [10+5]

3.a) Describe herbal-food and herbal- drug interactions with examples.
b) Write the nutraceutical benefits of Ginger. [10+5]

4.a) Describe the role of nutraceuticals in the management of cancer and diabetes.
b) Explain the role of Spirulina and Ashwagandha as health foods. [5+10]

5.a) Write the sources of any two fixed oils and their role in cosmetics.
b) Write the significance of colorants and sweeteners of natural origin. [5+10]

6.a) Write a note on natural excipients used as diluents and disintegrants.
b) Write a note on phytosomes. [8+7]

7.a) Explain the procedures adopted in stability testing of herbal drugs.
b) Explain the case study of curcuma patent. [8+7]

8.a) What are the objectives of GMP? Write the infrastructural requirements of a herbal drug industry.
b) Write a note on documentation and SOPs as per GMP. [8+7]

--ooOoo--

Code No: 245AB **R17**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy III Year I Semester Examinations, February-2022
INDUSTRIAL PHARMACY - I

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1. Discuss concepts of polymorphism and its significance in industrial setup in detail. [15]

2. Discuss the importance of study of physicochemical characteristics of drug substances in preformulation. [15]

3. Write the classification of tablets in detail. [15]

4. Write the formulation of coating composition in detail. [15]

5. Discuss storage and stability testing of soft gelatin capsules. [15]

6. Write notes on:
   a) Pelletization process.
   b) Fluidised bed coater (FBC). [7+8]

7. Define parenteral. Write the advantages and limitations of parenterals. Add a note on importance of isotonicity. [15]

8.a) Discuss factors influencing choice of containers in detail.
b) Write in detail about legal and official requirements for containers. [7+8]

--ooOoo--

R17

Code No: 245AA

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy III Year I Semester Examinations, February-2022
MEDICINAL CHEMISTRY-II

Time: 3hours **Max.Marks:75**

Answer any five questions
All questions carry equal marks
- - -

1.a) Write the mechanism of action and structure of H2 receptor antagonists.
b) Outline the synthesis of cimetidine. [8+7]

2.a) Write the mechanism of action, SAR and uses of antimetabolites.
b) Outline the synthesis of mercaptopurine. [8+7]

3.a) Write the classification , SAR , mechanism of action of Calcium channel blockers.
b) Write in brief on potassium sparing diuretics. [8+7]

4. Outline the synthesis and mechanism of action of following drugs:
a) Isosorbide dinitrate
b) Furosemide
c) Methyldopate hydrochloride. [5+5+5]

5.a) Write the classification and SAR of antiarrythmic agents.
b) Outline the synthesis and mechanism of action of warfarin. [7+8]

6. Write the category, mechanism of action and uses of the following drugs:
a) Mexiletine hydrochloride
b) Amiodarone
c) Clopidogrel
d) Tezosentan
e) Cholestipol. [15]

7.a) Discuss the drugs used for the treatment of erectile dysfunction.
b) Give a brief note on oral contraceptives. [8+7]

8.a) Write the SAR and mechanism of action of local anaesthetics.
b) Outline the synthesis and uses of procaine. [8+7]

--ooOoo--

R17

Code No: 246SB

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy III Year II Semester Examinations, August/September-2021
MEDICINAL CHEMISTRY – I

Time: 3 hours **Max.Marks:75**

Answer any five questions
All questions carry equal marks
- - -

1.a) What is chelation? Explain with one suitable example.
b) Write a note on optical isomerism. [8+7]

2.a) Explain what is mean by partition coefficient (P). Give its importance in medicinal chemistry.
b) Explain Bioisosterism? [9+6]

3.a) What are sympathomimetic agents? Give the structure of methyldopa.
b) Give the structure of any one direct acting sympathomimetic agents. [8+7]

4.a) What is tolazoline? Give its structure and uses.
b) Write the synthesis of Tolazoline. [8+7]

5.a) What is physostigmine?
b) Give the structure of any one synthetic cholinergic blocking agents. [7+8]

6.a) Give the structure of Dicyclomine hydrochloride. Give its uses.
b) Write a note on cholinergic receptors. [9+6]

7.a) Write brief note on Pentazocine.
b) Outline the synthesis of Methadone hydrochloride. [7+8]

8.a) What are NSAIDs? Give an example.
b) Differentiate between narcotic and non-narcotic analgesics. [7+8]

--ooOoo--

Code No: 245SB **R17**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy III Year I Semester Examinations, February-2022
MEDICINAL CHEMISTRY - I

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1.a) Discuss in detail phase I reactions involved in the drug metabolism.
b) Define and give the significance of the following physicochemical parameters on biological activity.
(i) Hydrogen bonding (ii) Solubility [8+7]

2.a) Explain the importance of Bioisosterism in drug design.
b) Give a note on history and development of medicinal chemistry. [8+7]

3.a) Write the pharmacological actions of Adrenaline and discuss the SAR of adrenomimetics.
b) Give a note on alpha adrenergic blockers along with the synthesis of Tolazoline. [8+7]

4.a) Write the SAR of β -adrenergic blockers. Outline the synthesis, mechanism of action and uses of propranolol.
b) Write the classification and SAR of sympathomimetic agents along with the synthesis of Salbutamol. [8+7]

5.a) Write the Biosynthesis and catabolism of acetylcholine.
b) Give a detail note on cholinesterase inhibitors along with the synthesis of Neostigmine. [8+7]

6.a) Write a note on SAR of Parasympathomimetics along with the synthesis of Carbachol.
b) Give a note on synthetic cholinergic blocking agents along with the synthesis of Dicyclomine hydrochloride. [8+7]

7.a) Explain in detail about SAR of Barbiturates.
b) Write a note on SAR of Phenothiazeines, write the synthesis of Chlorpromazine hydrochloride. [8+7]

8.a) Outline the synthesis, mechanism of action and uses of (i) Halothane (ii) Ketamine Hcl.
b) Write the mechanism of action, uses and SAR of morphine analogues. Outline the synthesis of Meperidine Hcl. [8+7]

--ooOoo--

Code No: 246AA **R17**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy III Year II Semester Examinations, February/March-2022
MEDICINAL CHEMISTRY – III

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1.a) Write the classification, mechanism of action and degradation of penicillins
b) Write the biological source, structures and toxicity of tetracyclines. [8+7]

2.a) Explain the mechanism of action, toxicity, SAR and uses of amino glycoside antibiotics.
b) Write a brief note on beta lactamase inhibitors. [8+7]

3.a) Discuss the basic concepts and application of prodrugs design.
b) Describe the etiology of malaria. [8+7]

4.a) Explain the mechanism of action , SAR and uses of quinoline antibiotics.
b) Outline the synthesis and mechanism of action of chloramphenicol. [8+7]

5. Write the synthesis, mechanism of action and uses of the following drugs:
a) isoniazid
b) nitrofurantoin
c) acyclovir. [5+5+5]

6. Write the classification of antiviral agents and discuss the general SAR of them. [15]

7.a) Explain the historical development, chemistry, classification of sulphonamides.
b) Give a brief notes on folate reductase inhibitors. [8+7]

8.a) Describe the pharmacophore modelling and docking techniques in detail.
b) Explain the applications and solid phase synthesis of combinatorial synthesis. [7+8]

--ooOoo--

Code No: 245AD **R17**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy III Year I Semester Examinations, February-2022
PHARMACOGNOSY AND PHYTOCHEMISTRY - II

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1. Discuss various key steps involved in the formation of different secondary metabolites through Acetate pathway. [15]

2. Briefly write about the utilization of radioactive isotopes in the investigation of biogenetic studies. [15]

3.a) Describe various general methods of extraction of Vinca alkaloids.
b) Write the detailed procedures involved in the analysis of Vinca alkaloids. [7+8]

4.a) Write in detail about the biosources and therapeutic uses of Cardiac Glycosides.
b) Explain briefly about the chemical composition of Cardiac Glycosides. [8+7]

5. Describe in detail about various analytical methods, therapeutic uses and commercial applications of Resins from Benzoin, Guggul and Ginger. [15]

6. What are Naphthaquinones and write about the composition and chemistry of Naphthaquinones. [15]

7. Write various Identification tests and analytical procedures for Podophyllotoxin and Curcumin. [15]

8. Discuss the general methods involved in the industrial production of Froskolin and add a note on therapeutic uses of Sennosides and Artemisinin. [15]

--ooOoo--

Code No: 245SA **R17**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy III Year I Semester Examinations, February-2022
PHARMACOLOGY - I

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1. Explain the different routes of administration with its advantages and disadvantages. [15]
2. Write about the phase-I and conjugation reaction in detail. [15]
3. Define and write about the different types of receptors. Explain in detail about G-protein coupled receptor. [15]
4. What is adverse drug reaction? Classify and explain about different types of adverse drug reactions. [15]
5. Classify skeletal muscle relaxant drugs. Explain about the mechanism of action, pharmacological action and adverse effect of centrally acting muscle relaxant. [15]
6. Write the chemical classification of Local anesthetics. Explain about the mechanism of action, pharmacological action and adverse effect of the ester types of local anesthetics. [15]
7. Classify antiepileptic drugs explain about the mechanism of action and adverse effects of phenytoin. [15]
8. Classify drugs used to treat parkinsons disease. Explain about the mechanism of action, pharmacological action and adverse effect of levodopa. [15]

--ooOoo--

Code No: 246AH **R17**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Pharmacy III Year II Semester Examinations, February/March-2022
SCREENING METHODS IN PHARMACOLOGY

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1.a) Explain use of mice as an experimental animal.
b) Discuss CPCSEA approved methods of euthanasia. [7+8]

2.a) Discuss various Breeding techniques.
b) Explain alternatives to animal studies. [7+8]

3. Discuss the parameters monitored in chronic toxicity studies. [15]

4. Describe acute toxicity studies according to OECD guidelines 425. [15]

5. List out the preclinical screening methods for the screening of new chemical entity for antiepileptic activity. Describe any two Methods. [15]

6. Discuss the principle and preclinical screening of Antipsychotic activity by any two methods. [15]

7. List out the animal models for studying antidiabetic activity. Explain any two methods to study antidiabetic activity. [15]

8. Explain any two methods to Screen antipyretic activity. [15]

--ooOoo--